PhD Candidate in Intelligent and flexible domain models for digital twins of maritime design and operation (IV-249/18)

About the position

We have an open PhD position related to this topic:
Intelligent and flexible domain models for digital twins of maritime design and operation.

The position reports to Head of department.

Job description

Nowadays, modern marine vessels operate increasingly autonomous through strongly interacting subsystems. These systems are dedicated to a specific, primary objective of the vessel or may be part of the general essential ship operations. Between sub-systems, they exchange data and make coordinated operational decisions, ideally without any user interaction. Designing, operating and life cycle service supporting such vessels is a complex engineering task requiring an efficient development approach to consider the mutual interaction between subsystems and the inherent multi-disciplinarily. Scalable simulation technologies should take the lead in this process. Furthermore, the work flow in maritime industry does not stop after vessel delivery. Through system updating or due to life cycle maintenance, subsystems can change. The overall behaviour of the entire vessel still needs to be efficient and value robust. To make sure of that, product design and product use need to be coupled already during early stages of design, which requires traceability through a performant data management system that spans the entire vessel lifecycle.

The scale of the maritime industry in Norway has experienced a noticeable increase in recent years. Ships, as the backbone of most of the maritime business, are of great concern to both ship owners and companies, especially for economically and safety beneficial reasons. In general, there are various sensors installed on the ship, some of which are used in real time for maneuvering and related actions, and some of which are placed in sensitive areas like propeller blade to collect the data for future purpose such as system diagnosis. The data on the vessel will be stored for years in huge size, forming a data set in terms of big data.

This PhD will focus on combining components from different sources are related to accuracy, timing, data-exchange, security and stability of the modelling and simulation.

See http://www.mechatronics.hials.org/project/project-kpn/ for more information about the project.

Qualification requirements

PhD candidate:
The PhD-position's main objective is to qualify for work in research positions. The qualification requirement is completion of a master's degree or second degree (equivalent to 120 credits) with a strong academic background in automation, computer science or equivalent education with a grade of B or better in terms of NTNU's grading scale. Applicants with no letter grades from previous studies must have an equally good academic foundation. Applicants who are unable to meet these criteria may be considered only if they can document that they are particularly suitable candidates for education leading to a PhD degree.

The appointment is to be made in accordance with the regulations in force concerning State Employees and Civil Servants and national guidelines for appointment as PhD, postdoctor and research assistant

Other qualifications

- Good programming skills
- Good theoretical and analytical skills
- Good communication skills
- Good at data mining
- Have knowledge in artificial intelligence, especially the experience related to data-driven modeling
- Written and oral fluency in English, documented by either TOEFL, IELTS or Cambridge Certificate in Advanced English (CAE) or Cambridge Certificate of Proficiency in English (CPE).

In extraordinary circumstances, formal documentation of language skills can be relinquished. In such cases the candidate's language skills will be assessed in a personal interview.

Personal characteristics

- Ability to work independently as well as in team
- Potential for research at an international level
- Keen interest in the wider context of own research, and an anbility to engage in cross-disciplinary teams

In the evaluation of which candidate is best qualified, emphasis will be placed on education, experience and personal suitability, as well as motivation, in terms of the qualification requirements specified in the advertisement

We offer

- exciting and stimulating tasks in a strong international academic environment
- an open and inclusive work environment with dedicated colleagues
- favourable terms in the Norwegian Public Service Pension Fund
- employee benefits

Salary and conditions

PhD candidate:
PhD candidates are remunerated in code 1017, and are normally remunerated at gross from NOK 449 400 per annum before tax. From the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund.

The period of employment is 3 years (or 4 years including 25% teaching duties). Appointment to a PhD position requires admission to the PhD programme in automation.

As a PhD candidate, you undertake to participate in an organized PhD programme during the employment period. A condition of appointment is that you are in fact qualified for admission to the PhD programme within three months.

Appointment takes place on the terms that apply to State employees at any time, and after the appointment you must assume that there may be changes in the area of work.

General information

Working at NTNU

A good work environment is characterized by diversity. We encourage qualified candidates to apply, regardless of their gender, functional capacity or cultural background. Under the Freedom of Information Act (Offentleglova), information about the applicant may be made public even if the applicant has requested not to have their name entered on the list of applicants.

Questions about the position can be directed to Professor Houxiang Zhang, e-mail hozh@ntnu.no

About the application:
Publications and other academic works that the applicant would like to be considered in the evaluation must accompany the application. Joint works will be considered. If it is difficult to identify the individual applicant's contribution to joint works, the applicant must include a brief description of his or her contribution.

Please submit your application electronically via jobbnorge.no with your CV, diplomas and certificates. Applicants invited for interview must include certified copies of transcripts and reference letters. Please refer to the application number IV-249/18 when applying.

Application deadline: October 31, 2018

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The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Department of Ocean Operations and Civil Engineering

We aim to be a hub of international knowledge and innovation in maritime operations. This involves education and research on the design of ships and marine equipment as well as on the operation of vessels. Maritime operations integrate technology, human factors and business. The interfaces between these areas often spark inspiration for innovation and new solutions. The Department of Ocean Operations and Civil Engineering is one of eight departments in the Faculty of Engineering.

Jobbnorge-ID: 158659, Søknadsfrist: Avsluttet